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10/688,777

10/17/2003

Boy-Chy Wang

PPG 1892A1

9538

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09/01/2006

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EXAMINER

GRAY, JILL M

ART UNIT

PAPER NUMBER

1774

DATE MAILED: 09/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/688,777

Applicant(s)

WANG, BOY-CHY

Examiner

Jill M. Gray

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1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-53 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-53 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>8/10/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 10, 2006 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lawton et al, 5,773,146 (Lawton '146) or Lawton et al, US 2002/005882 A1 (Lawton '882), each in view of Triplett et al, 3,265,516 (Triplett). Lawton '146 and '882 are each as applied in previous Office Actions.

As set forth in previous Office Actions, claims 2-4 and 24-26 are product-by-process claims. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art,

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the claim is unpatentable even though the prior product was made by a different process. Accordingly, claims 2-4 are drawn to a size composition comprising a starch mixture comprising a high viscosity starch and a low viscosity starch and claims 24-26 are drawn to a glass fiber at least partially coated with the residue of a sizing composition comprising a starch mixture comprising a high viscosity starch and a low viscosity starch.

Lawton '146 and '882 are as set forth previously wherein Lawton '146 teaches an aqueous sizing composition for glass fibers comprising a mixture of a high viscosity starch and a low viscosity starch and glass fibers coated therewith, as required by claims 1-4, 23-26, and 45. See abstract and column 5, lines 37-38. Lawton also teaches that the composition further comprises an emulsifier, an alkyl imidazoline cationic lubricant, a gamma-glycidoxypolytrimethoxysilane silane, biocide, and defoamer, as required by claims 8-14 and 30-36. See column 7, line 57, column 8, lines 37 and 54, column 11, lines 38-39, and column 12, line 41. In addition, Lawton teaches that a non-ionic lubricant can be added, said non-ionic lubricant including oils and esters formed from reacting a monocarboxylic acid and a monohydric alcohol, per claims 15 and 37, wherein the esters have a melting point within applicants' range as claimed in claims 16 and 38 and the monocarboxylic acid and monohydric alcohol are each of the type contemplated by applicants in claims 17-18 and 39-40. See column 6, lines 48-55, column 7, lines 16-35, and column 11, line 54. As to claims 46 and 49, these claims are drawn to the size of the glass fibers, wherein changes in size are not ordinarily a matter of invention. Regarding claims 47-48 and 50-51, Lawton teaches a method of coating

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his glass fibers. It is the examiner's position that weaving with an air jet loom is a well known process in the glass fiber art and would have been an obvious fiber processing step commensurate with the desired end product. Accordingly, these limitations are not a matter of invention.

Lawton '882 teaches an aqueous sizing composition for glass fibers comprising a mixture of a high viscosity starch and a low viscosity starch and glass fibers coated therewith, as required by claims 1-4, 23-26, and 45. See abstract and [0030]. Lawton also teaches that his sizing composition contains an emulsifier, an alkylimidazoline cationic lubricant, biocide, gamma-glycidoxypolytrimethoxy silane coupling agent, and defoamer, as required by claims 8-14 and 30-36. See [0100], [0101], [0104], [0106], and [0114]. In addition, Lawton teaches that lubricants including waxes and oils can be used and include esters formed from reacting a monocarboxylic acid and a monohydric alcohol, wherein the monocarboxylic acid and monohydric alcohol are of the type contemplated by applicants in claims 15-20 and 37-42. See [0095]. Moreover, Lawton teaches that these lubricious materials are present in an amount ranging from 5 to 50 weight percent, as required by claims 21 and 43. See [0098]. As to claims 45-46, Lawton teaches that the glass strands comprise a plurality of glass fibers having a diameter within the claimed range and that his strands can comprise from 200 to 800 glass fibers. See [0129] and Table C. Regarding claims 47-48 and 50-51, Lawton teaches that a method of producing an at least partially coated glass fiber comprising his sizing composition, further teaching that the glass strands can be twisted or non-twisted. See [0131] and [0132]. In addition, Lawton teaches a method that comprises

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weaving the glass fibers using an air jet loom, whereby warp yarns are fed into a loom to form a shed and fill yarns are fed into the shed formed by the warp yarns. See [0132] and [0133]. Regarding claim 49, Lawton teaches glass fiber strands having the same dimensions as required by applicants. See Table C.

Lawton '146 and '882 each teach starch mixtures of high viscosity starch and low viscosity (high amylose) starch, but do not specifically teach a mixture of high viscosity, high amylose starch and low viscosity high amylose starch. Nonetheless, Lawton teaches that the formation of blends comprising a high viscosity starch and low viscosity starch are known. This teaching would have provided a suggestion to the skilled artisan that other high viscosity starches could be blended with low viscosity starches with the reasonable expectation of success of forming an aqueous sizing composition having advantages such as minimum fuzz and low broken filaments. Moreover, since the suggested blends of Lawton each include "HI-SET 369", a low viscosity high amylose starch, it would have been obvious to the skilled artisan at the time the invention was made to select other high viscosity starches taught by Lawton such as "HYLON" (a high viscosity high amylose starch) to blend with said low viscosity starch, motivated by the teaching of Lawton of high viscosity/low viscosity blends and the reasonable expectation of success of obtaining a blend suitable for an aqueous sizing composition. As to claims 6 and 28, the amounts of each component taught by Lawton would have rendered obvious the instant claimed ratios. See '146, column 5, lines 21-555 and '882 [0027] and [0029]. Regarding claims 22 and 44, it is the examiner's position that since the result sought and the ingredients used were known, it was within the expected skills

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of one having ordinary skill in this art to arrive at the optimum proportions of those ingredients. Lawton '146 and '882 do not teach that at least 50% of the high viscosity starch and at least 50% of the low viscosity starch are solubilized.

Triplett teaches a glass fiber sizing composition comprising a high amylose starch, lubricant, bactericide, softening agent and a wetting agent. Triplett also teaches that the starch is added to water to form a slurry and then heated (cooked) at a sufficient temperature and for a sufficient length of time to allow the high amylose starch to go into aqueous solution, additionally teaching that the starches can be cooked at a sufficient temperature and for a sufficient time to result in the starch being readily miscible in water. Also, Triplett teaches that his composition has a viscosity of about 1 to 100 and preferably about 1 to 20 cp. See column 6, lines 16-39.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Lawton '146 and '882 by cooking the starch mixtures at a sufficient temperature and for a sufficient length of time to form an aqueous solution or a solution that is readily miscible water in the formation of an aqueous sizing composition, as suggested by the prior art teachings of Triplett. Moreover, it should be noted that the subject matter defined by the invention of claims 2-4 and 24-26 when read in light of the specification only embraces cooking in a cooker at 126.5°C for 11 seconds, per the disclosed Examples. Lawton '146 and '882 each teach cooking in a cooker at a temperature within the range of that disclosed by applicants although silent as to the length of time. Triplett, in his Examples teaches cooking his starches at varying temperatures and times sufficient to allow the starch to

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form an aqueous solution. It is the position of the examiner that one of ordinary skill in the art at the time the invention was made, in possession of the prior art teachings would have been reasonably motivated to cook the starches of Lawton '146 and '882 at a sufficient temperature (within the general knowledge in the art) for a sufficient length of time (also within the general knowledge in the art) to facilitate the starch mixture forming an aqueous solution, as taught by Triplett, or more specifically, wherein at least 50% of the starches in the starch mixture are solubilized. Furthermore, there is no factual evidence on this record that the compositions of Lawton do not result in the starches being at least 50% solubilized. As to the viscosity, it would have been obvious to modify the teachings of Lawton to result in a viscosity within the range taught by Triplett and as claimed by applicants in order to produce a sizing composition that allows the ability to impart the necessary binding power to the glass fibers while depositing fewer solids which would facilitate easier size removal.

Therefore, the combined teachings of Lawton '146 and Triplett or alternatively Lawton '882 and Triplett would have rendered obvious the invention as claimed in present claims 1-53.

Response to Arguments

4. Applicant's arguments with respect to claims 1-53 have been considered but are moot in view of the new ground(s) of rejection.

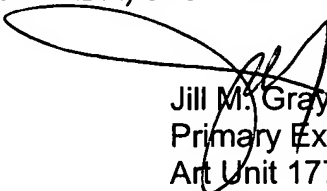
No claims are allowed.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill M. Gray whose telephone number is 571-272-1524. The examiner can normally be reached on M-Th and alternate Fridays 10:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jill M. Gray
Primary Examiner
Art Unit 1774

jmg